

Thesis title:

Quantitative analysis of the gain and loss relationship between rivers and aquifers using groundwater and surface water numerical modelling

Abstract:

The proper understanding of the gain/loss relationship between aquifers and surface water is important, especially in the stressed watersheds where there is a need for heavy extraction of groundwater in the nearby areas as it leads to a severe decline in water table and affects the overall water balance.

In general, there is a huge demand for water for the agricultural, industrial and domestic usages in most of the basins in Sri Lanka. Attanagalu Oya basin (Study area) which is located almost entirely within the Gampaha district in the wet zone of the country is a major hydrologic feature of the region. It is also important in determining the availability and effective water management for the increasing water demand within and outskirts of the basin. The main demand for water in this area is due to irrigation and the streamflow will be modelled considering the surface and groundwater interactions of the watershed and the model will be used to quantify the availability of surface and groundwater resources in the study area focusing on future demand as well as impending climate change impacts.